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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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08/09/2007

Roy J. Lahr

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EXAMINER

HOUT, AMPLE

ART UNIT

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4175

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/591,143	Applicant(s) LAHR, ROY J.	
	Examiner AMPLE HOUT	Art Unit 4175	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/28/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities: the term, “the fabric” lacks antecedent basis. The examiner will interpret “the fabric” to mean “the elastomeric sheet”. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-24 and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roylance (US 5,141,343) in view of Gratke (US 4,857,684).

4. Regarding claim 1, Roylance discloses a keyboard (see Fig. 1, keycaps 110 and 120) adapted for use in connection with an electronic device (the examiner interprets the keycaps to be adapted for use with the electronic device depicted in Fig. 1), comprising:

a flexible and foldable floor in a substantially single plane (see Fig. 1, items 78 and 360, for example) in at least one linear direction and at least one angular direction between an expanded position and a contracted position (see Fig. 1 and Fig. 13, wherein items 40, 60, and 70 are shown to be linearly extended; the examiner notes that the foldable floor including items 78 and 360 inherently stretch in at least one angular direction when changing from folded to unfolded states); and

a plurality of keycaps arranged on the flexible and foldable floor (see Fig. 1, keycaps 110 and 120), each keycap corresponding to a respective key of the electronic device, a spacing between adjacent keycaps in the at least one linear direction and the at least one angular direction expandable and contractible in accordance with and proportional to expansion and contraction of the elastomeric sheet between the expanded position of the sheet and the contracted position of the sheet (see Fig. 10 and Fig. 11, angled keypads 402);

Roylance does not explicitly disclose that the flexible and foldable floor is an elastomeric sheet.

However, elastomeric sheets were well known in the art at the time of invention, as exemplified by Gratke (see col. 4 lines 55-64, elastomeric element 8).

It would have been obvious to a person having ordinary skill in the art at the time of invention to use an elastomeric sheet as taught by Gratke as the flexible and foldable floor of Roylance, such that the elastomeric sheet in the contracted position is arranged to be substantially entirely received in a housing (housing 20) of the electronic device of Roylance.

The motivation is evident as an elastomeric sheet would provide the desired material characteristics of flexibility and foldability in an expandable keyboard.

5. Regarding claims 2 and 3, Roylance in view of Gratke teaches the keyboard according to claim 1, but lacks explicit disclosure of keycaps with corresponding numeral or alphanumerical indications.

Keycaps with corresponding numeral and alphanumerical indications were well

known in the art at the time of invention.

It would have been obvious to a person having ordinary skill in the art at the time of invention to provide each keycap with an indication of at least one corresponding alphanumeric character or each keycap with an indication of a corresponding numeral.

The motivation is evident as a keycap with corresponding numeral or alphanumeric indications provide visual feedback related to the keycap's functionality.

6. Regarding claim 4, Roylance in view of Gratke teaches the keyboard according to claim 1, further comprising a frame including substantially rigid elements (see Roylance, Fig. 1 and Fig. 13, elements 246, 60, and 70) extendable and contractible in at least one direction.

7. Regarding claim 5, Roylance in view of Gratke teaches the keyboard according to claim 4, wherein the substantially rigid elements include a plurality of rigid elements configured to telescope in at least one direction (see Roylance, col. 6 lines 52-56, wherein elements 60 and 70 are disclosed as telescoping members).

8. Regarding claim 6, Roylance in view of Gratke teaches the keyboard according to claim 4, wherein the substantially rigid elements include a plurality of drawer elements (see Roylance, Fig. 1 and Fig. 13, wherein elements 60 and 70 slide into each other and constitute "drawer" element), the drawer elements configured to be received in the housing (housing 20) of the electronic device in a storage position and extendable from the housing of the electronic device into a keyboard data entry position.

9. Regarding claim 7, Roylance in view of Gratke teaches the keyboard according to claim 5, but lacks disclosure of the rigid elements as substantially tubular. Note,

however, that the element 60 as depicted in Fig. 13 of Roylance is a semi-hollow telescopic element that is essentially shaped like a flattened tube.

Tubular telescopic elements were well known in the art at the time of invention.

It would have been obvious to a person having ordinary skill in the art at the time of invention to shape the telescopic rigid elements of Roylance in a substantially tubular manner.

The motivation is evident as reshaping the telescopic elements of Roylance to provide tubular shaped elements represents the simple substitution of one telescopic element for another telescopic element to obtain the predictable result of telescopic contraction and expansion.

10. Regarding claim 8, Roylance in view of Gratke teaches the keyboard according to claim 1, further comprising at least one substantially rigid panel arranged on a side of the elastomeric sheet opposite the keycaps (see Roylance, Fig. 1, wherein element 60 is arranged on the bottom side opposite to the upper row of keycaps).

11. Regarding claim 9, Roylance in view of Gratke teaches the keyboard according to claim 1, further comprising a plurality of substantially rigid panels arranged on a side of the elastomeric sheet opposite the keycaps (see Roylance, Fig. 1, wherein elements 60 and 70 are arranged on the bottom side opposite to the upper row of keycaps), the panels configured to be stacked in the contracted position of the elastomeric sheet (see Roylance, wherein the telescopic elements 60 and 70 would be stacked in the contracted state of the keyboard), the panels movable relative to each other in at least one direction in accordance with expansion and contraction of the elastomeric sheet

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between the expanded position of the elastomeric sheet and the contracted position of the elastomeric sheet.

12. Regarding claim 10, Roylance in view of Gratke teaches the keyboard according to claim 1, wherein the elastomeric sheet is elastically stretchable in the substantially single plane in one linear direction (see Roylance, wherein the keyboard is expanded in a single plane in the leftward direction of Fig. 1) and one angular direction about an axis perpendicular to the one linear direction (the examiner interprets an axis perpendicular to the leftward direction as an axis that points from the bottom row of keycaps to the top row of keycaps; consequently, the leftward direction represents a right angle direction relative to that perpendicular axis).

13. Regarding claim 11, Roylance in view of Gratke teaches the keyboard according to claim 1, further comprising a connection layer (the examiner interprets the flexible and foldable wiring floor 360 of Roylance as a connection layer) arranged on a side of the elastomeric sheet opposite the keycaps (the wiring floor is on the bottom side of the keyboard, which is opposite to the top side of the keycaps).

14. Regarding claim 12, Roylance in view of Gratke teaches the keyboard according to claim 1, wherein the keycaps are elastically expandable (see Roylance, Fig. 10) and contractible (see Roylance, Fig. 11) in the at least one direction in accordance with and proportional to expansion and contraction of the elastomeric sheet.

15. Regarding claim 13, Roylance discloses an electronic device (see Fig. 1), comprising:

a housing (housing 20);

and a keyboard (keycaps 110 and 120) including:

a flexible and foldable floor in a substantially single plane in at least one linear direction and at least one angular direction between an expanded position and a contracted position (see Fig. 1 and Fig. 13, wherein items 40, 60, and 70 are shown to be linearly extended; the examiner notes that the foldable floor including items 78 and 360 inherently stretch in at least one angular direction when changing from folded to unfolded states); and

a plurality of keycaps arranged on the flexible and foldable floor (see Fig. 1, keycaps 110 and 120), each keycap corresponding to a respective key of the electronic device,

a spacing between adjacent keycaps in the at least one linear direction and the at least one angular direction expandable and contractible in accordance with and proportional to expansion (see Fig. 10) and contraction (see Fig. 11) of the elastomeric sheet between the expanded position of the elastomeric sheet and the contracted position of the flexible and foldable floor;

wherein the flexible and foldable floor in the contracted position is arranged to be substantially entirely received in the housing (see Fig. 12, wherein the contracted flexible floor is received in the housing 20).

Roylance does not explicitly disclose that the flexible and foldable floor is an elastomeric sheet.

However, elastomeric sheets were well known in the art at the time of invention, as exemplified by Gratke (see col. 4 lines 55-64, elastomeric element 8).

It would have been obvious to a person having ordinary skill in the art at the time of invention to use an elastomeric sheet as taught by Gratke as the flexible and foldable floor of Roylance.

The motivation is evident as an elastomeric sheet would provide the desired material characteristics of flexibility and foldability in an expandable keyboard.

16. Regarding claim 14, Roylance in view of Gratke teaches the electronic device according to claim 13, wherein the elastomeric sheet is elastically stretchable in the substantially single plane in one linear direction (see Roylance, wherein the keyboard is expanded in a single plane in the leftward direction of Fig. 1) and one angular direction about an axis perpendicular to the one linear direction (the examiner interprets an axis perpendicular to the leftward direction as an axis that points from the bottom row of keycaps to the top row of keycaps; consequently, the leftward direction represents a right angle direction relative to that perpendicular axis).

17. Regarding claim 15, Roylance in view of Gratke teaches the electronic device according to claim 13, but lacks disclosure of the sensor and light set forth in claim 15.

Ambient light sensors and illuminating lights were well known in the art at the time of invention.

It would have been obvious to a person having ordinary skill in the art at the time of invention to provide an ambient light sensor and a light configured to illuminate the keycaps in the expanded position of the elastomeric sheet based on an ambient light level determined by the ambient light sensor.

The motivation is evident as illuminated keycaps can provide visual feedback in dark conditions.

18. Regarding claims 16 and 17, Roylance in view of Gratke teaches the electronic device according to claim 13, but lacks explicit disclosure of keycaps with corresponding numeral or alphanumerical indications.

Keycaps with corresponding numeral and alphanumerical indications were well known in the art at the time of invention.

It would have been obvious to a person having ordinary skill in the art at the time of invention to provide each keycap with an indication of a corresponding numeral or each keycap with an indication of at least one corresponding alphanumeric character.

The motivation is evident as a keycap with corresponding numeral or alphanumerical indications provide visual feedback related to the keycap's functionality.

19. Regarding claim 18, Roylance in view of Gratke teaches the electronic device according to claim 13, further comprising a frame including substantially rigid elements (see Roylance, Fig. 1 and Fig. 13, elements 246, 60, and 70) extendable and contractible in at least one direction.

20. Regarding claim 19, Roylance in view of Gratke teaches the electronic device according to claim 18, wherein the substantially rigid elements include a plurality of rigid elements configured to telescope in at least one direction (see Roylance, col. 6 lines 52-56, wherein elements 60 and 70 are disclosed as telescoping members).

21. Regarding claim 20, Roylance in view of Gratke teaches the electronic device according to claim 18, wherein the substantially rigid elements include a plurality of

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drawer elements (see Roylance, Fig. 1 and Fig. 13, wherein elements 60 and 70 slide into each other and constitute "drawer" element), the drawer elements configured to be received in the housing (housing 20) in a storage position and extendable from the housing into a keyboard entry position.

22. Regarding claim 21, Roylance in view of Gratke teaches the electronic device according to claim 19, but lacks disclosure of the rigid elements as substantially tubular. Note, however, that the element 60 as depicted in Fig. 13 of Roylance is a semi-hollow telescopic element that is essentially shaped like a flattened tube.

Tubular telescopic elements were well known in the art at the time of invention.

It would have been obvious to a person having ordinary skill in the art at the time of invention to shape the telescopic rigid elements of Roylance in a substantially tubular manner.

The motivation is evident as reshaping the telescopic elements of Roylance to provide tubular shaped elements represents the simple substitution of one telescopic element for another telescopic element to obtain the predictable result of telescopic contraction and expansion.

23. Regarding claim 22, Roylance in view of Gratke teaches the electronic device according to claim 13, further comprising at least one substantially rigid panel arranged on a side of the elastomeric sheet opposite the keycaps (see Roylance, Fig. 1, wherein element 60 is arranged on the bottom side opposite to the upper row of keycaps).

24. Regarding claim 23, Roylance in view of Gratke teaches the electronic device according to claim 13, further comprising a plurality of substantially rigid panels

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arranged on a side of the elastomeric sheet opposite the keycaps (see Roylance, Fig. 1, wherein element 60 is arranged on the bottom side opposite to the upper row of keycaps), the panels configured to be stacked in the contracted position of the elastomeric sheet (see Roylance, wherein the telescopic elements 60 and 70 would be stacked in the contracted state of the keyboard), the panels movable relative to each other in at least one direction in accordance with expansion and contraction of the elastomeric sheet between the expanded position of the elastomeric sheet and the contracted position of the elastomeric sheet.

25. Regarding claim 24, Roylance in view of Gratke teaches the electronic device according to claim 13, further comprising a connection layer (the examiner interprets the flexible and foldable wiring floor 360 of Roylance as a connection layer) arranged on a side of the elastomeric sheet opposite the keycaps (the wiring floor is on the bottom side of the keyboard, which is opposite to the top side of the keycaps).

26. Regarding claim 26, Roylance in view of Gratke teaches the electronic device according to claim 13, wherein the keycaps are elastically expandable (see Roylance, Fig. 10) and contractible (see Roylance, Fig. 11) in the at least one linear direction and the at least one angular direction in accordance with and proportional to expansion and contraction of the elastomeric sheet.

27. Regarding claim 27, Roylance discloses an electronic device (see Fig. 1), comprising:

- a housing (housing 20);

- and a keyboard including:

a flexible and foldable floor in a substantially single plane in at least one linear direction and at least one angular direction between an expanded position and a contracted position; and

a plurality of keycaps (see Fig. 1, keycaps 110 and 120) arranged on the flexible and foldable floor, each keycap corresponding to a respective key of the electronic device,

a spacing between adjacent keycaps in the at least one linear direction and the at least one angular direction expandable and contractible in accordance with and proportional to expansion (see Fig. 10) and contraction (see Fig. 11) of the flexible and foldable floor between the expanded and contracted positions of the flexible and foldable floor;

wherein the flexible and foldable floor in the contracted position has a width and a length in the substantially single plane not greater than a width and a length of the housing (the contracted floor is stored within the housing, and thus, is not greater than the width and length of the housing).

Roylance does not explicitly disclose that the flexible and foldable floor is an elastomeric sheet.

However, elastomeric sheets were well known in the art at the time of invention, as exemplified by Gratke (see col. 4 lines 55-64, elastomeric element 8).

It would have been obvious to a person having ordinary skill in the art at the time of invention to use an elastomeric sheet as taught by Gratke as the flexible and foldable floor of Roylance.

The motivation is evident as an elastomeric sheet would provide the desired material characteristics of flexibility and foldability in an expandable keyboard.

28. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Roylance in view of Gratke in further view of Sternglass (US 5,995,025).

29. Regarding claim 25, Roylance in view of Gratke teaches the electronic device according to claim 13, but lacks disclosure of the electronic device configured as a wireless telephone.

Sternglass teaches an expandable keyboard in a mobile telephone (see Sternglass col. 5 lines 1-3 and Fig. 7F).

It would have been obvious to a person having ordinary skill in the art at the time of invention to provide the mobile telephone of Sternglass with the expandable keyboard of Roylance in view of Gratke.

The motivation is evident as expandable keyboards can provide mobile devices a fully functional keyboard while still maintaining a compact structure.

Double Patenting

30. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir.

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1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

31. Claims 1-9, 11-13, 15-23, and 24-27 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-9, 11-13, 15-23, and 25-28 of US 7,104,715. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims are either covered by or are obvious variations of the claims of US 7,104,715.

Regarding claims 1-9, 11-13, and 15-23 of the instant application, note claims 1-9, 11-13, and 15-23 of US 7,104,715, respectively.

Regarding claims 24-27 of the instant application, note claims 25-28 of US 7,104,715.

Conclusion

32. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references Miramontes (US 2004/0147278), Roylance (US 5,982,612), and Roylance (US 5,687,058) each teach devices with compact keyboards similar to the claimed subject matter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AMPLE HOUT whose telephone number is (571)270-

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5475. The examiner can normally be reached on Monday through Friday, 8:00AM to 5:00PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Robinson can be reached on 571-272-2319. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AMPLE HOUT/

Examiner, Art Unit 4175

/Jefferey F Harold/

Supervisory Patent Examiner, Art Unit 4192